



## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2019-0597; Project Identifier 2019-NE-05-AD]**

**RIN 2120-AA64**

#### **Airworthiness Directives; CFM International, S.A. Turbofan Engines**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Supplemental notice of proposed rulemaking (SNPRM).

**SUMMARY:** The FAA is revising a notice of proposed rulemaking (NPRM) that applied to certain CFM International, S.A. (CFM) CFM56-5B, CFM56-5C, and CFM56-7B model turbofan engines with a certain rotating air high-pressure turbine (HPT) front seal. This action revises the NPRM by requiring CFM56-5B or CFM56-7B model turbofan engines with an installed reconfigured rotating air HPT front seal, which was previously installed and operated in a CFM56-5C model turbofan engine, to follow the removal requirements for the CFM56-5C model turbofan engine. The FAA is proposing this airworthiness directive (AD) to address the unsafe condition on these products. Since these actions would impose an additional burden over those in the NPRM the agency is requesting comments on this SNPRM.

**DATES:** The FAA must receive comments on this SNPRM by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <https://www.regulations.gov>. Follow the instructions for submitting comments.

- Fax: (202) 493-2251.

- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this SNPRM, contact CFM International, S.A., Aviation Operations Center, 1 Neumann Way, M/D Room 285, Cincinnati, OH 45125; phone: (877) 432-3272; email: [aviation.fleetsupport@ge.com](mailto:aviation.fleetsupport@ge.com). You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (781) 238-7759.

### **Examining the AD Docket**

You may examine the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2019-0597; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains the NPRM, this SNPRM, any comments received, and other information. The street address for Docket Operations is listed above.

**FOR FURTHER INFORMATION CONTACT:** Christopher McGuire, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7120; fax: (781) 238-7199; email: [Chris.McGuire@faa.gov](mailto:Chris.McGuire@faa.gov).

### **SUPPLEMENTARY INFORMATION:**

#### **Comments Invited**

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under ADDRESSES. Include “Docket No. FAA-2019-0597; Project Identifier 2019-NE-05-AD” at the beginning of your comments. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may again revise this proposal because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to <https://www.regulations.gov>, including any

personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this proposed AD.

### **Confidential Business Information**

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this SNPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this SNPRM, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as “PROPIN.” The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this SNPRM. Submissions containing CBI should be sent to Christopher McGuire, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

### **Background**

The FAA issued an NPRM to amend 14 CFR part 39 to supersede AD 2019-12-05, Amendment 39-19660 (84 FR 28717, June 20, 2019), (AD 2019-12-05). AD 2019-12-05 applies to all CFM CFM56-5B, CFM56-5C, and CFM56-7B model turbofan engines with a certain rotating air HPT front seal. The NPRM published in the *Federal Register* on October 23, 2019 (84 FR 56709). The NPRM was prompted by cracks found in the rotating air HPT front seal. In the NPRM, the FAA proposed to require replacement of the affected rotating air HPT front seal with a part eligible for installation.

### **Actions Since the NPRM was Issued**

Since the FAA issued the NPRM, CFM has issued CFM Service Bulletin (SB) CFM56-5B S/B 72-1074, Revision 02, dated November 6, 2019; CFM SB CFM56-5C S/B 72-0794, Revision 02, dated November 6, 2019; and CFM SB CFM56-7B S/B 72-1042, Revision 02, dated November 6, 2019. These SBs provide service information for following the removal limits established for CFM56-5C model turbofan engines for CFM56-5B or CFM56-7B model turbofan engines with a reconfigured rotating air HPT

front seal that was previously operated in a CFM56-5C model turbofan engine.

## **Comments**

The following discussion presents the comments received on the NPRM and the FAA's response.

### **Request to Revise and Remove Installation Prohibition**

American Airlines, CFM, and Lufthansa Technik AG requested the FAA revise the language in the Installation Prohibition to specify that it is only applicable to those rotating air HPT front seals that have affected serial numbers (S/Ns). Lufthansa Technik AG also requested the FAA remove the Installation prohibition from this proposed rule. Lufthansa Technik AG indicated that this AD already requires the removal of rotating air HPT front seals at an interval that will prevent an unsafe condition.

The FAA partially agrees. The FAA has revised this proposed AD by adding language to the Installation Prohibition referencing the specific S/Ns in the Applicability section to ensure that the rotating air HPT front seals affected by the Installation Prohibition are clear. The FAA disagrees with the request to remove the Installation Prohibition. The requirement to remove rotating air HPT front seals is necessary to address the unsafe condition and provide a drawdown period to remove the affected rotating air HPT front seals from service. Rotating air HPT front seals installed on a different HPT disk from which they were removed after the effective date of the AD will not meet the certified removal limits established in the Airworthiness Limitations Section.

### **Request to Clarify Engine and Rotating Air HPT Front Seal Intermix Requirements**

American Airlines requested the FAA clarify the engine and rotating air HPT front seal intermix requirements, since CFM has released SB revisions that provide guidance on rotating air HPT front seals that have been operated in multiple engine models.

The FAA agrees and has revised this proposed AD. The FAA revised the compliance requirements in this proposed AD by adding additional required actions for CFM56-5C model turbofan engines with an affected rotating air HPT front seal that was

assembled to a second or later HPT disk since being reconfigured.

### **Request to Specify No Reporting Requirement**

American Airlines requested the FAA add a paragraph to this proposed AD to specify that there are no reporting requirements. The commenter noted that the CFM SBs specify reporting information to CFM.

The FAA disagrees. The required actions of this AD do not mandate the use of the referenced service information to comply with this AD. The reporting instructions included in the SBs are not required by this AD. The FAA made no change to this AD.

### **Request to Clarify Inclusion of Engine Models**

Lufthansa Technik AG requested the FAA provide clarification regarding the NPRM supersedure preamble's discussion of expanding the applicability of the AD to include CFM56-5B, CFM56-5C, and CFM56-7B model turbofan engines. The commenter indicated that those engine models are already included in applicability of the AD 2019-12-05.

The NPRM supersedure preamble states that AD 2019-12-05 only addresses the highest risk engines with an affected rotating air HPT seal that has a specified number of cycles since being reconfigured. The NPRM supersedure proposes to expand the affected engine models to include all CFM CFM56-5B, CFM56-5C, and CFM56-7B model turbofan engines, including those engines that have fewer cycles since being reconfigured. The NPRM supersedure does not propose the addition of affected engine models to the applicability. The FAA made no change to this proposed AD.

### **FAA's Determination**

The FAA is proposing this AD after determining the unsafe condition described previously is likely to exist or develop in other products of the same type design. Certain changes described above expand the scope of the NPRM. As a result, it is necessary to reopen the comment period to provide additional opportunity for the public to comment on this SNPRM.

### **Related Service Information**

The FAA reviewed CFM Service Bulletin (SB) CFM56-5B S/B 72-1074, Revision 02, dated November 6, 2019; CFM SB CFM56-5C S/B 72-0794, Revision 02,

dated November 6, 2019; and CFM SB CFM56-7B S/B 72-1042, Revision 02, dated November 6, 2019. CFM SB CFM56-5B S/B 72-1074, Revision 02, describes procedures for replacement of the affected rotating air HPT front seal on CFM CFM56-5B model turbofan engines. CFM SB CFM56-5C S/B 72-0794, Revision 02, describes procedures for replacement of the affected rotating air HPT front seal on CFM CFM56-5C model turbofan engines. CFM SB CFM56-7B S/B 72-1042, Revision 02, describes procedures for replacement of the affected rotating air HPT front seal on CFM CFM56-7B model turbofan engines.

### **Proposed AD Requirements in this SNPRM**

This proposed AD would retain the requirements of AD 2019-12-05 (84 FR 28717, June 20, 2019) (AD 2019-12-05). The proposed AD would expand the applicability to require the replacement of affected rotating air HPT front seals installed on CFM CFM56-5B, CFM56-5C, and CFM56-7B model turbofan engines that have fewer cycles since being reconfigured than the engines affected by AD 2019-12-05. This proposed AD would also require CFM56-5B and CFM56-7B model turbofan engines with a reconfigured rotating air HPT front seal that was previously operated in a CFM56-5C model turbofan engine to follow the removal requirements of the CFM56-5C model turbofan engine.

### **Costs of Compliance**

The FAA estimates that this AD, if adopted as proposed, would affect four engines installed on airplanes of U.S. registry.

The FAA estimates the following costs to comply with this proposed AD:

#### **Estimated costs**

<b>Action</b>	<b>Labor Cost</b>	<b>Parts Cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Replace the rotating air HPT front seal	1 work-hour x \$85 per hour = \$85	\$344,600	\$344,685	\$1,378,740

### **Authority for this Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator.

Subtitle VII: Aviation Programs describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### **Regulatory Findings**

The FAA determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Would not affect intrastate aviation in Alaska, and
- (3) Would not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

### **The Proposed Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

#### **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by removing Airworthiness Directive (AD)

2019-12-05, Amendment 39-19660 (84 FR 28717, June 20, 2019), and adding the following new AD:

**CFM International, S.A.:** Docket No. FAA-2019-0597; Project Identifier 2019-NE-05-AD.

**(a) Comments Due Date**

The FAA must receive comments on this airworthiness directive (AD) by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**(b) Affected ADs**

This AD replaces AD 2019-12-05, Amendment 39-19660 (84 FR 28717, June 20, 2019).

**(c) Applicability**

This AD applies to:

(1) CFM International, S.A. (CFM) CFM56-5B1, -5B2, -5B4, -5B5, -5B6, -5B7, -5B1/P, -5B2/P, -5B3/P, -5B4/P, -5B5/P, -5B6/P, -5B7/P, -5B8/P, -5B9/P, -5B3/P1, -5B4/P1, -5B1/2P, -5B2/2P, -5B3/2P, -5B4/2P, -5B6/2P, -5B9/2P, -5B3/2P1, -5B4/2P1, -7B20, -7B22, -7B24, -7B26, -7B27, -7B22/B1, -7B24/B1, -7B26/B1, -7B26/B2, -7B27/B1, -7B27/B3, -7B20/2, -7B22/2, -7B24/2, -7B26/2, -7B27/2, -7B27A model turbofan engines with a:

(i) Rotating air high-pressure turbine (HPT) front seal:

(A) With part number (P/N) 1795M36P01 or P/N 1795M36P02 and serial numbers (S/Ns) GWNDN949 through GWNSE969 or S/Ns GWN000CE through GWN0990L, not including S/Ns GWN08ND7, GWN0923A, GWN0971E, GWN098A1, GWN098W6, GWN098W8, GWN098WA, and GWN0990G, installed, and

(B) That has been removed from the original HPT disk and re-assembled to a different HPT disk.

(ii) [Reserved]

(2) CFM CFM56-5C2, -5C2/4, -5C2/F, -5C2/F4, -5C2/G, -5C2/G4, -5C2/P, -5C3/F, -5C3/F4, -5C3/G, -5C3/G4, -5C3/P, -5C4, -5C4/1, -5C4/P, -5C4/1P model



turbofan engines with a:

(i) Rotating air HPT front seal:

(A) With P/N 1795M36P01 or P/N 1795M36P02 and S/Ns GWNDN949 through GWNSE969 or S/Ns GWN000CE through GWN0990L, not including S/Ns GWN08ND7, GWN0923A, GWN0971E, GWN098A1, GWN098W6, GWN098W8, GWN098WA, and GWN0990G, installed, and

(B) That has been removed from the original HPT disk and re-assembled to a different HPT disk.

(ii) [Reserved]

**(d) Subject**

Joint Aircraft System Component (JASC) Code 7250, Turbine Section.

**(e) Unsafe Condition**

This AD was prompted by cracks found in the rotating air HPT front seal. The FAA is issuing this AD to prevent failure of the rotating air HPT front seal. The unsafe condition, if not addressed, could result in the uncontained release of the rotating air HPT front seal, damage to the engine, and damage to the airplane.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Required Actions**

(1) For all affected CFM CFM56-5B and CFM56-7B model turbofan engines:

(i) If, on July 5, 2019 (the effective date of AD 2019-12-05), the rotating air HPT front seal has 7,000 cycles or greater since being reconfigured, remove the part from service within 50 cycles after July 5, 2019 (the effective date of AD 2019-12-05), or before further flight, whichever occurs later, and replace with a part eligible for installation.

(ii) If, on July 5, 2019 (the effective date of 2019-12-05), the rotating air HPT front seal has between 6,001 and 6,999 cycles, inclusive, since being reconfigured, remove the part from service within 500 cycles after July 5, 2019 (the effective date of AD 2019-12-05), but not to exceed 7,050 cycles since being reconfigured, or before

further flight, whichever occurs later, and replace with a part eligible for installation.

(iii) For all remaining CFM56-5B and CFM56-7B model turbofan engines, remove the rotating air HPT front seal from service before accumulating 6,500 cycles since being reconfigured, or within 50 cycles after the effective date of this AD, whichever occurs later.

(2) For all affected CFM CFM56-5C model turbofan engines:

(i) If, on July 5, 2019 (the effective date of AD 2019-12-05), the rotating air HPT front seal has 4,250 cycles or greater since being reconfigured, remove the part from service within 25 cycles after July 5, 2019 (the effective date of AD 2019-12-05), within 1,500 cycles since the last fluorescent penetrant inspection (FPI) of the rotating air HPT front seal, or before further flight after the effective date of this AD, whichever occurs later, and replace with a part eligible for installation.

(ii) If, on July 5, 2019 (the effective date of AD 2019-12-05), the rotating air HPT front seal has between 3,751 and 4,249 cycles, inclusive, since being reconfigured, remove the part from service within 250 cycles after July 5, 2019 (the effective date of AD 2019-12-05), before accumulating 4,275 cycles since being reconfigured, within 1,500 cycles since the last FPI of the rotating air HPT front seal, or before further flight after the effective date of this AD, whichever occurs later, and replace with a part eligible for installation.

(iii) For all remaining CFM CFM56-5C model turbofan engines, remove the rotating air HPT front seal from service before accumulating 4,000 cycles since being reconfigured, or within 50 cycles after the effective date of this AD, whichever occurs later.

(3) For CFM56-5B or CFM56-7B model turbofan engines with an affected rotating air HPT front seal that has been operated in a CFM56-5C model turbofan engine since being reconfigured, remove the rotating air HPT front seal from service using the cycle limits in paragraph (g)(2) of this AD.

**(h) Definition**

For the purpose of this AD, “reconfigured” occurs when a rotating air HPT front seal has been removed from the original HPT disk and re-assembled to a different HPT

disk.

**(i) Installation Prohibition**

After the effective date of this AD, do not assemble any rotating air HPT front seal with greater than 0 cycles since new, having a S/N listed in paragraph (c) of this AD onto a HPT disk unless it is the same S/N HPT disk on which it has previously been assembled.

**(j) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, ECO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in Related Information. You may email your request to: *ANE-AD-AMOC@faa.gov*.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

**(k) Related Information**

(1) For more information about this AD, contact Christopher McGuire, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7120; fax: (781) 238-7199; email: *Chris.McGuire@faa.gov*.

(2) For service information identified in this AD, contact CFM International, S.A., Aviation Operations Center, 1 Neumann Way, M/D Room 285, Cincinnati, OH 45125; phone: (877) 432-3272; email: *aviation.fleetsupport@ge.com*. You may view this referenced service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (781) 238-7759.

Issued on March 12, 2021.

Lance T. Gant, Director,  
Compliance & Airworthiness Division,  
Aircraft Certification Service.

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